

THE PENDING CLAIMS:

Claims 1 - 18 (Cancelled).

19. (Previously Presented) A dry-etching apparatus used in dry-etching a metal thin film as a chromium-containing half-tone phase-shift film, wherein the apparatus is provided with a sequencer for establishing dry-etching conditions and with a source of an etching gas comprising chlorine gas, oxygen gas and one of either hydrogen gas or hydrogen chloride gas, wherein said metal thin film is a chromium-containing half-tone phase-shift film consisting of a chromium film, a chromium oxide film, a chromium nitride film, chromium oxynitride film, chromium fluoride film or a laminated film thereof; wherein if an etching gas used consists of chlorine, oxygen and hydrogen gases, the relative flow rates of these gases are expressed in terms of % by volume range from 66 to 46, 17 to 11 and 18 to 41% by volume, respectively, or if an etching gas used consists of chlorine, oxygen and hydrogen chloride gases, the relative flow rates of these gases as expressed in terms of % by volume range from 58 to 44, 15 to 11 and 28 to 45% by volume, respectively; and wherein the apparatus is so designed that when inputting the parameters relating to the foregoing dry-etching conditions, directly or through a memory device of a computer, to said sequencer and then starting the dry-etching process, the dry-etching is automatically carried out under the foregoing dry-etching conditions.

20. (Previously Presented) A dry-etching apparatus comprising an etching chamber, a transport chamber, a substrate cassette bed, a source of an etching gas comprising chlorine gas, oxygen gas and one of either hydrogen gas or hydrogen chloride gas, and a sequencer for establishing dry-etching conditions, wherein four electromagnets each comprising a square-shaped ring-like coil are provided on an outer side of said etching chamber, two each of these electromagnets being opposite to one another and making a pair, these electromagnets being so designed that when applying

a low frequency current which is 90 deg. out of phase thereto, the combined magnetic field established by these two paired electromagnets can rotate in a plane parallel to a substrate at a frequency identical to that of the low frequency current, an RF electrode and an opposite electrode are disposed in said etching chamber, a transport robot for transporting said substrate is provided in said transport chamber, said transport robot being a two-joint robot having two knots, the tip of a transport arm thereof being able to undergo advancing, reciprocating and rotating motions due to the composition of rotational motions of a motor axis and these two knots within each horizontal plane, the robot thus transporting the substrate, wherein a metal thin film to be dry-etched is a chromium-containing half-tone phase-shift film consisting of a chromium film, a chromium oxide film, a chromium nitride film, chromium oxynitride film, chromium fluoride film or a laminated film thereof, wherein if an etching gas used consists of chlorine, oxygen and hydrogen gases, the relative flow rates of these gases as expressed in terms of % by volume range from 66 to 46, 17 to 11 and 18 to 41% by volume, respectively, or if an etching gas used consists of chlorine, oxygen and hydrogen chloride gases, the relative flow rates of these gases as expressed in terms of % by volume range from 58 to 44, 15 to 11 and 28 to 45% by volume, respectively, and wherein the apparatus is so designed that when inputting the parameters relating to the foregoing dry-etching conditions, directly or through a memory device of a computer, to said sequencer and then starting the dry-etching process, the dry-etching is automatically carried out under the foregoing dry-etching conditions.